

In The Claims:

Please cancel claims 1-38. Please add the following claims:

39. A data structure embodied in a machine readable storage medium controlling a bulk material baler comprising:

an instruction to a moveable guide track section support strut to move from a removed position to a closed position when a compression apparatus advances a volume of bulk material to be baled into a compressed position in a baling station;

an instruction to a bale wire feed drive to feed a predetermined length of bale wire into a guide track loop when said moveable guide track section support strut reaches said closed position;

an instruction to a wire cutter to cut a proximal end of said bale wire length;

an instruction to a wire knotter to knot a proximal end portion of said length of bale wire together with a distal end portion of said predetermined length of bale wire;

an instruction to said moveable guide track section support strut assembly to move to said removed position after said wire length end portions are knotted together; and

an instruction to said compression apparatus to release from said compressed position after said moveable guide track sections are moved away from said compression apparatus.

40. The data structure of Claim 39 further comprising:
 - an instruction to a tensioning gripper to grip a distal end of said bale wire length when said bale wire length distal end completes transit of said guide track loop;
 - an instruction to said bale wire feed drive to reverse drive direction for tensioning said bale wire length after said tensioning gripper secures said bale wire length distal end; and
 - an instruction to said bale wire feeder drive and to said tensioning gripper to release after said bale wire end portions are knotted.
41. The data structure of Claim 39 further comprising:
 - an instruction to at least one tensioning pin to extend when said bale wire length distal end completes transit of said guide track loop; and
 - an instruction to said at least one tensioning pin to retract after said bale wire length end portions are knotted.
42. The data structure of Claim 39 further comprising:
 - an instruction to at least one knotter tie cylinder to reverse for return to a ready position after said bale wire length end portions are knotted together.
43. The data structure of Claim 39 further comprising:
 - an instruction to an ejection apparatus to eject the bale from said baling station after said moveable guide track section support strut assembly reaches said removed position and after said compression apparatus decompresses.

44. The data structure of Claim 39 further comprising:
 - an instruction to said compression apparatus to begin a next cycle after said bound bale has moved away from said compression apparatus and said moveable guide track.
45. The data structure of Claim 39 further comprising:
 - an instruction to a moveable guide track section support strut to move from a ready position to a closed position when a compression apparatus advances a volume of bulk material to be baled into a compressed position in the baling station;
 - an instruction to said moveable guide track section support strut assembly to move to an eject position after said bale wire length end portions are knotted together and released; and
 - an instruction to said moveable guide track section strut assembly to return from said eject position to said ready position after an ejection apparatus ejects a bound bale from said baling station.
46. The data structure of Claim 39 wherein said data structure stores strut position data recording the position status of said moveable guide track section support strut and wherein said data structure receives said strut position data from at least one proximity switch for signaling said closed position, and at least one proximity switch for signaling said eject position, said switches being in communication with said data structure.

47. The data structure of Claim 39 further comprising an instruction in said data structure to decelerate said progressing bale wire substantially about 2 to 4 inches proximal to said gripper.

48. The data structure of Claim 39 further comprising an instruction in said data structure to stop said progressing bale wire at a pre-configured length.

49. The data structure of Claim 39-further comprising an instruction in said data structure that the baling wire move at a preconfigured speed, said pre-configured speed being between 15 and 100 inches per second.

50. The data structure of Claim 39-further comprising an instruction in said data structure that a pre-configured tension be applied to said baling wire, said pre-configured tension corresponding to a pre-configured electro servo motor torque between 0 and 93 inches/pound.

51. The data structure of Claim 39 wherein said data structure signals an alarm and a shutdown at an current monitor amperage level predetermined to correspond to an arrest of progress of the bale wire length through the bale wire guide track.

52. The data structure of Claim 39 wherein said data structure signals an automatic alarm and a shut off at a current monitor amperage level predetermined to correspond to an improper tie speed.

53. The data structure of Claim 39 wherein said data structure signals an automatic alarm and a shut off at a current monitor amperage level predetermined to correspond to an improper tie torque.

54. The data structure of Claim 39 further comprising an instruction in said data structure to maintain a preconfigured torque for said tying cylinder, said torque being within a range between 0 and 54 inches per pound.

55. The data structure of Claim 39 wherein said instruction in said data structure to feed a predetermined length of bale wire is responsive to a set of user programmable settings for user control of said bale wire length.

56. The data structure of Claim 39 further comprising an instruction in said data structure constraining current flow to a tying cylinder propulsion electric servo motor, said motor driving said wire knotter, wherein said constraint is responsive to a set of user input parameters for pre-configuring torque.

57. The data structure of Claim 43 wherein said ejection apparatus has a proximity switch to signal a return to a ready position after ejection of the bound bale of bulk material from said baling station.

58. The apparatus of claim 39 further comprising a memory for storing a plurality of process variable configurations input by an operator and downloadable for operative application by said programmable logic controller.

59. The apparatus of claim 39 further comprising a memory for storing historical process data.

60. A data structure embodied in a machine readable storage medium controlling a bulk material baler comprising:

an instruction to a moveable guide track section support strut to move from a ready position to a closed guide track loop position when a compression

apparatus advancing a volume of bulk material to a compressed position in a baling station is ready to bale;

an instruction to a bale strapping length feed drive to feed a length of bale strapping into said guide track loop when said moveable guide track section support strut reaches said closed loop position;

an instruction to a tensioning gripper to grip a distal end portion of said bale strapping length upon said bale strapping length distal end portion having completed transit of said guide track loop;

an instruction to at least one tensioning pin to extend upon said bale strapping length distal end having completed transit of said guide track loop;

an instruction to said bale strapping length feed drive to reverse drive direction for tensioning after said tensioning gripper securing said bale strapping length distal end portions;

an instruction to a bale strapping length cutter to cut a proximal end of said bale strapping length;

an instruction to a fastener to fasten together said end portions of said bale strapping length;

an instruction to at least one fastener tie cylinder to reverse for return to a ready position after said bale strapping length end portions are knotted;

an instruction to said at least one tensioning pin to retract after said bale strapping length end portions are knotted;

an instruction to said bale strapping length feeder drive and to said tensioning gripper to release after said bale strapping length end portions are fastened together; and

an instruction to said moveable guide track section support strut assembly to move to an eject position after said bale strapping length end portions are fastened together;

an instruction to said compression apparatus to release from said compressed position after the moveable guide track sections move away from said compression apparatus; and

an instruction to said moveable guide track section strut assembly to return from eject position to ready position after an ejection apparatus ejects a bound bale from said baling station.

61. A data structure embodied in a machine readable storage medium in combination with a programmable logic controller in bulk material baler control system comprising:

an instruction to a moveable guide track section support strut to move from a ready position to a closed guide track loop position when a compression apparatus and a volume of bulk material reaches a compressed position in a baling station where;

an instruction to a bale strapping length feed drive to feed a length of bale strapping into said guide track loop upon receipt of a signal from said moveable guide track section support strut that it has reached said closed loop position;

an instruction to a tensioning gripper to grip a distal end portion of said bale strapping length upon receipt of a signal from a guide track limit switch that said bale strapping length distal end has completed transit of said guide track loop;

an instruction to at least one tensioning pin to extend upon receipt of a signal from said loop limit switch that said bale strapping length distal end has completed transit of said guide track loop;

an instruction to said bale strapping length drive to reverse drive direction for tensioning after receipt of a signal from said tensioning gripper that said bale strapping length has been gripped;

an instruction to a bale strapping length cutter to cut a proximal end of said bale strapping length after receipt of a signal from said bale strapping feeder drive that said bale strapping has reached a predetermined tension;

an instruction to a fastener to fasten together the end portions of said bale strapping length;

an instruction to at least one fastener tie cylinder to reverse for return to ready position a when said bale strapping end portions are fastened together;

an instruction to said tensioning pins to retract after receipt of a signal from said fastener that said bale strapping length end portions are fastened together;

an instruction to said bale strapping length feeder drive and to said tensioning gripper to release after receipt of signal from said fastener that said bale strapping length end portions are fastened together;

an instruction to said moveable guide track section support strut assembly to move to an eject position after receipt of a signal from said bale strapping length feeder drive and said tensioning gripper that said predetermined tension is released;

an instruction to said compression apparatus to release from said compressed position after receipt of a signal from a proximity switch on said moveable guide track section support strut assembly that the moveable guide track sections are away from of said compression apparatus;

an instruction to an ejector apparatus to eject a bound bale from said baling station after receipt of a signal from said moveable guide track section support strut assembly that it has reached said eject position and after receipt of a signal from said compression apparatus that it is decompressed; and

an instruction to said moveable guide track section strut assembly to return from said eject position to a ready position after receipt of a signal from said ejection apparatus that said bound bale has been ejected from said baling station.

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,



By: Robert C. Haldiman
Husch & Eppenberger, LLC
190 Carondelet Plaza
St. Louis, MO 63105
314-480-1641
314-480-1505 FAX